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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/911,859      | 07/25/2001  | John Hagopian        | 033337/0108         | 4216             |
| 22428           | 7590        | 04/19/2005           |                     |                  |
|                 |             |                      | EXAMINER            |                  |
|                 |             |                      | KHUONG, LEE T       |                  |
|                 |             |                      | ART UNIT            | PAPER NUMBER     |
|                 |             |                      | 2665                |                  |

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                                   |
|------------------------------|------------------------|-----------------------------------|
| <b>Office Action Summary</b> | Application No.        | Applicant(s)                      |
|                              | 09/911,859             | HAGOPIAN ET AL. <i>(initials)</i> |
|                              | Examiner<br>Lee Khuong | Art Unit<br>2665                  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 25 July 2001.  
 2a) This action is FINAL.                  2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-36 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-36 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 12 December 2001 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>208/2002</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Egoshi (US 6,163,526).

**Regarding claim 6,** Egoshi teaches a Transmission System and Method For Switching Connection From A Working Channel Line To A Protection Channel Line While Avoiding Instantaneous Cutoff Upon Failure.

Egoshi teaches transmitting the data over a service optical fiber line (Fig. 1, see col. 5, line 58 - col. 6, line 10, *an SDH frame is transmitted from terminal 31 and received at terminal 36 through either the working channel or the protection channel*); and

delaying (48, Fig. 1, *a data delay unit*) transmission of the data over a protection optical fiber by a first delay amount with respect to the reception of the data over the service optical fiber line (see col. 9, lines 33-54, *the data delay unit 48 provides a delay for the SDH frame on the protection channel*).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-2, 4-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egoshi (US 6,163,526) in view of Omuro et al. (US 5,241,534) hereinafter referred as Omuro.

**Regarding claim 1,** Egoshi teaches a Transmission System and Method For Switching Connection From A Working Channel Line To A Protection Channel Line While Avoiding Instantaneous Cutoff Upon Failure.

Egoshi teaches receiving the data over a service optical fiber line (Fig. 1, see col. 5, line 58 - col. 6, line 10, *an SDH frame is transmitted from terminal 31 and received at terminal 36 through either the working channel or the protection channel*);

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delaying (48, Fig. 1, *a data delay unit*) reception of the data over a protection optical fiber by a first delay amount with respect to the reception of the data over the service optical fiber line (see col. 9, lines 33-54, *the data delay unit 48 provides a delay for the SDH frame on the protection channel*);

detecting a fault condition (5, Fig. 3, *an alarm determination unit*) in the service (*working*) optical fiber line (see col. 6, lines 11-21 and lines 34-37, *an alarm indication indicated a channel line has failed*);

receiving the transmission of data over the protection optical fiber line in response to the detection of the fault condition (see col. 6, lines 11-21 and lines 34-37, col. 9, lines 33-54).

Egoshi does not expressly teach wherein the first delay amount corresponds to at least the amount of time to switch to the reception of the data over the protection optical fiber line from the reception of the data over the service optical fiber line after the detection of the fault condition.

Omuro teaches the first delay amount corresponds to at least the amount of time to switch to the reception of the data over the protection optical fiber line from the reception of the data over the service optical fiber line after the detection of the fault condition (see col. 9, lines 16 – col. 10, line 27, *a Guard time*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ the guard timing of Omuro with the optical transmitting system of Egoshi to arrive the invention of claim 1.

One of ordinary skill in the art would have been motivated to do this in order to improve network reliability/quality (see col. 6, lines 28-34).

**Regarding claim 2,** Egoshi and Omuro teach all limitations set forth in the rejection of claim 1. Egoshi further teaches storing a first amount of the data in a buffer coupled to the protection optical fiber line (48, Fig. 1, see col. 9, lines 33-35, *the elastic memory*).

Omuro teaches the first amount of the data corresponding to at least the amount of data that is transmitted over the service optical fiber line during the first delay amount (see col. 9, lines 16 – col. 10, line 27, *the Guard time*).

**Regarding claim 4,** Egoshi and Omuro teach all limitations set forth in the rejection of claim 1.

Egoshi further teaches storing the portion of the data received over the service optical fiber line when the fault is detected (see col. 21, lines 38-42); comparing the data received over the protection optical fiber line to the stored portion of the data (see col. 25, lines 8-15); and synchronizing the stored portion of the data with the data received over the protection optical fiber line based on a result of the comparison (see col. 25, lines 16-26).

**Regarding claim 5,** Egoshi and Omuro teach all limitations set forth in the rejection of claim 4. Egoshi further teaches removing the data received over the protection optical fiber line that has already been received over the service optical fiber line (see col. 11, lines 14-29).

**Regarding claims 7 and 8,** Egoshi teaches all limitations set forth in the rejection of claim 6.

Egoshi further teaches storing a first amount of the data in a buffer coupled to the protection optical fiber line (48, Fig. 1, see col. 9, lines 33-35, *the elastic memory*).

Egoshi does not expressly teach the first delay amount corresponds to at least the amount of time to switch to receiving the data corresponding to at least the amount of data that is transmitted over the protection optical fiber line from receiving the data over the service optical fiber line after the detection of a fault condition in the service optical fiber line.

Omuro teaches the first delay amount corresponds to at least the amount of time to switch to receiving the data corresponding to at least the amount of data that is transmitted over the protection optical fiber line from receiving the data over the service optical fiber line after the detection of a fault condition in the service optical fiber line (see col. 9, lines 16 – col. 10, line 27, *a Guard time*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ the guard timing of Omuro with the optical transmitting system of Egoshi to arrive the invention of claims 7 and 8.

One of ordinary skill in the art would have been motivated to do this in order to improve network reliability/quality (see col. 6, lines 28-34).

6. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egoshi in view of Omuro and further in view of Tochio (US 6,563,613).

**Regarding claims 3 and 9,** Egoshi and Omuro teach all limitations set forth in the rejection of claims 2 and 8.

Egoshi and Omuro do not expressly teach a) converting the data from an optical format to an electrical format;

b) placing the data in the electrical format into the buffer; and

c) converting the data in the buffer from the electrical format to the optical format for placement on the protection optical fiber line.

Tochio teaches a) (24, Fig. 2, see col. 5, line 45 – col. 6, line 5, *converting a data from an optical format to an electrical format*);

b) (38, Fig. 9, see col. 10, line 54 – col. 11, line 13, *placing the electrical data into a buffer*); and

c) (24, Fig. 2, see col. 5, line 45 – col. 6, line 5, *converting a data from an electrical format to an optical format*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ the conversion of optical-to-electrical and electrical-to-optical data format of Tochio with the optical transmitting system of Egoshi and Omuro to arrive at the invention in claims 3 and 9.

One of ordinary skill in the art would have been motivated to do this in order to conform with SONET requirements to be able to process its data in a circuit switch or an IP router.

7. Claims 10, 12, 14-19, 20, 22, 24-28, 29, 31 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egoshi in view of Fukushima et al. (US 6,205,562) hereinafter is referred as Fukushima.

**Regarding claims 10, 20 and 29,** Egoshi teaches a Transmission System and Method For Switching Connection From A Working Channel Line To A Protection Channel Line While Avoiding Instantaneous Cutoff Upon Failure.

Egoshi teaches a transmitting terminal (31, Fig. 1, *a terminal A*) which transmits the data (see col. 5, line 58 – col. 6, line 10);

a receiving terminal (36, Fig. 1, *a terminal F*) which receives the data transmitted by the transmitting terminal (see col. 5, line 58 – col. 6, line 10);

a service optical fiber line (WRK CH, Fig. 1, *a working channel*) which propagates the data from the transmitting terminal to the receiving terminal (see col. 5, line 58 – col. 6, line 10);

a protection optical fiber line (PRT CH, Fig. 1, see col. 5, line 58 – col. 6, line 10, *a protection channel*) which propagates the data from the transmitting terminal to the receiving terminal;

a switch (32 and 33, Fig. 1, *transport terminals*) coupled to the receiving terminal and to the service and protection optical fiber lines, the switch providing data to the receiving terminal from the service optical fiber line during normal operation and from the protection optical fiber line when a fault is detected in the service optical fiber line (see col. 5, line 58 – col. 6, line 10 and col. 9, col. 14, lines 42-57); and

a delay circuit for (41, Fig. 1) delaying the transmission of the data propagating on the protection optical fiber line (see col. 8, lines 45-58 and col. 9, lines 33-54).

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Egoshi does not expressly teach the transport terminals 32 and 32 in Fig. 1 are integrated as one unit.

However, an optical switch with integrated service optical fiber line and protection optical fiber line is well known in the art for providing fault tolerance in a network as evidenced by Fukushima.

Fukushima teaches an optical switch (node b, Fig. 4, *an optical switch*) with the service (218, Fig. 4, *a working path*) and the protection optical fiber line (219, Fig. 4, *a protection path*) are integral parts of a switching unit (see col. 6, lines 28-67).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the optical switch of Fukushima with the optical transmission system of Egoshi to arrive at the invention of claims 10, 20 and 29.

The suggestion/motivation for doing so would have been to provide an integral unit for ease of modification.

**Regarding claims 12, 22 and 31,** this claim has similar limitations of claim 2.

Therefore, it is rejected under Egoshi for the same reasons set forth in the rejection of claim 2.

**Regarding claims 14 and 24,** this claim has similar limitations of claim 4. Therefore, it is rejected under Egoshi for the same reasons set forth in the rejection of claim 4.

**Regarding claims 15 and 25,** this claim has similar limitations of claim 5. Therefore, it is rejected under Egoshi for the same reasons set forth in the rejection of claim 5.

**Regarding claims 16, 26 and 33,** Egoshi and Fukushima teach all limitations set forth in the rejection of claims 10, 20 and 29. Egoshi further teaches first (39, Fig. 1, *a distribution unit*) and second (51, Fig. 1, *a selector unit*) transmission control devices (see col. 8, lines 19-22 and col. 9, lines 32-54); and first (33, Fig. 1) and second (32, Fig. 1) line terminating equipment coupled to a respective one of the first and second transmission control devices and coupled to a respective one of the service optical fiber line and the protection optical fiber line (see col. 5, line 58 – col. 6, line 10).

**Regarding claims 17, 27 and 34,** Egoshi and Fukushima teach all limitations set forth in the rejection of claims 16, 26 and 33. Egoshi further teaches the delay circuit is located in one of the first and second transmission control devices (41, Fig. 1, see col. 8, lines 45-49).

**Regarding claims 18 and 35,** Egoshi and Fukushima teach all limitations set forth in the rejection of claims 16 and 33. Egoshi further teaches the delay circuit is located in the first or second line terminating equipment that is coupled to the protection optical fiber line (41, Fig. 1, see col. 45-59).

**Regarding claims 19, 28, and 36,** Egoshi and Fukushima teach all limitations set forth in the rejection of claims 16, 26 and 33. Egoshi further teaches the first and second transmission protocol devices are one of a SONET box, an SDH box and an IP router (see col. 5, line 58 – col. 6, line 10).

8. Claims 11, 21 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egoshi in view of Fukushima and further in view of Omuro.

**Regarding claims 11, 21 and 30,** Egoshi and Fukushima teach all limitations set forth in the rejection of claims 10, 20 and 29.

Egoshi and Fukushima do not expressly teach the delay circuit imparting a delay amount at least equal to an amount of time between the detection of the fault in the service optical fiber line and the switch providing data to the receiving terminal from the protection optical fiber line.

Omuro teaches the delay circuit imparting a delay amount at least equal to an amount of time between the detection of the fault in the service optical fiber line and the switch providing data to the receiving terminal from the protection optical fiber line (see col. 9, lines 16 – col. 10, line 27, *a Guard time*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ the guard timing of Omuro with the optical transmitting system of Egoshi and Fukushima to arrive the invention in claims 11, 21 and 30.

One of ordinary skill in the art would have been motivated to do this in order to improve network reliability/quality (see col. 6, lines 28-34).

9. Claims 13, 23 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egoshi in view of Fukushima and further in view of Tochio.

**Regarding claims 13, 23 and 32,** this claim has similar limitations of claim 3.

Therefore, it is rejected under Tochio for the same reasons set forth in the rejection of claim 3.

***Conclusion***

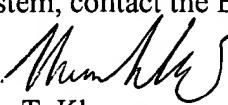
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chaudhuri (US 5,745,476); Vaman et al. (US 6,011,780) ; Vaman et al. (US 6,426,941); Sawey et al. (US 6,515,962); Carder et al. (US 6,765,874); Courtney et al. (US 2002/0176432); are cited to show a System and Method of providing Zero Data Loss Network Protection.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Khuong whose telephone number is 571-272-3157. The examiner can normally be reached on 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Lee T. Khuong  
Examiner  
Art Unit 2665

  
ALPLUS H. HSU  
PRIMARY EXAMINER